

IN THE CLAIMS

1. (currently amended) A parallel arithmetic apparatus, comprising:

a plurality of pairs of devices, each pair including recording means for recording ~~arithmetical~~ arithmetic elements to be operated on and operating means for performing sum-of-products operations ~~based on the arithmetical~~ arithmetic elements recorded in ~~said the~~ recording means; and

~~wherein one of said recording means of all pairs is selected and selecting means inserted between the recording means and the operating means in a first pair for inputting said the arithmetic~~ arithmetical ~~elements recorded in the selected recording means of a selected pair to the operating means of said the selected pair is inserted between the recording means and operating means of any one pair.~~

2. (currently amended) The parallel arithmetic apparatus according to claim 1, further comprising:

~~wherein temporary recording means inserted between the recording means and the operating means in a second pair different from the first pair for temporarily recording said the arithmetic~~ arithmetical ~~elements recorded in the recording means of the second a pair in which said selecting means is not inserted is inserted between the recording means and operating means of said pair;~~ and wherein

~~said the selecting means is adapted constructed in such a way as to input the arithmetic~~ arithmetical ~~elements recorded in the said temporary recording means to the said operating means of the second pair when the second pair is the selected pair when the recording means of the pair in which said selecting means is not inserted is selected.~~

3. (currently amended) The parallel arithmetic apparatus according to claim 1, wherein ~~said~~

~~the recording means of each pair all pairs record records,~~
~~during a matrix operation,~~ a first ~~arithmetical~~ arithmetic
element to be subjected to ~~said a matrix~~ operation, and a second
arithmetic element ~~during a vector inner product operation,~~ a
~~second arithmetical element~~ to be subjected to an ~~said~~ inner
product operation, and

~~said the~~ selecting means is adapted ~~constructed~~, during
~~said the~~ matrix operation, ~~in such a way as to~~ input ~~said the~~
first arithmetic ~~arithmetical~~ element from the recording means
of the ~~own~~ selected pair to the operating means of the ~~own~~
selected pair and, during ~~said the~~ inner product operation, ~~in~~
~~such a way as to~~ select the ~~said~~ recording means of ~~all each~~
pair ~~pairs~~ one by one in a round-robin fashion and input ~~said~~
the second arithmetic ~~arithmetical~~ element from each the
~~selected recording means~~ to the operating means of the selected
~~the own pair~~.

4. (currently amended) The parallel arithmetic apparatus according to claim 1, wherein, for each of the pairs, ~~said the~~
operating means in the pair performs an operation with a content
independently assigned to the pair ~~said pair~~ using ~~said~~
~~arithmetical the arithmetic~~ elements recorded in the recording
means of ~~said the~~ pair.

5. (currently amended) The parallel arithmetic apparatus according to claim 4, wherein ~~said the~~ operation is an operation associated with any one of four-dimensional coordinate components.

6. (currently amended) A parallel arithmetic apparatus that selectively performs a matrix operation and a vector inner product operation, comprising:

a plurality of recording means for recording, during the ~~said~~ matrix operation, a first arithmetic ~~arithmetical~~ element to be subjected to ~~said~~ the matrix operation and for recording, during ~~said~~ the inner product operation, a second arithmetic ~~arithmetical~~ element to be subjected to the ~~said~~ inner product operation;

a plurality of operating means forming a one-to-one correspondence with the ~~said~~ plurality of recording means for performing, during the ~~said~~ matrix operation, a sum-of-products operation in which ~~by~~ each operating means ~~inputting~~ inputs the ~~said~~ first arithmetic ~~arithmetical~~ element recorded in the corresponding recording means, and for performing, during the ~~said~~ inner product operation, a sum-of-products operation in which ~~by~~ a predetermined one of the plurality of operating means inputs ~~inputting~~ the ~~said~~ second arithmetic ~~arithmetical~~ element recorded in ~~all~~ each of the recording means; and

selecting means for selecting, during the ~~said~~ matrix operation, ~~the~~ a first recording means corresponding to the ~~said~~ predetermined operating means and inputting a first arithmetic ~~arithmetical~~ element recorded in the first ~~this~~ recording means to in the ~~said~~ predetermined operating means, and for selecting, during the ~~said~~ inner product operation, the ~~said~~ plurality of recording means one by one in a round-robin fashion and inputting ~~a~~ the second arithmetic ~~arithmetical~~ element recorded in each of the ~~selected~~ recording means to the ~~in~~ ~~said~~ predetermined operating means.

7. (currently amended) The parallel arithmetic apparatus according to claim 6, wherein ~~said the~~ first and second arithmetic elements are arithmetical element ~~is~~ expressed with a floating point number and the plurality of said operating means ~~is are~~ constructed ~~so as to~~ perform the a sum-of-products operation of the on floating point numbers ~~number~~.

8. (currently amended) An entertainment apparatus that performs image processing on an entertainment image by performing a matrix operation with regard to coordinates expressing a position and a shape of an object and performing an inner product operation with regard to vectors used to express an image of ~~said the~~ object, the apparatus comprising:

a plurality of registers that record ~~records~~, during ~~said the~~ matrix operation, a first arithmetic ~~arithmetical element~~ subjected to ~~said the~~ matrix operation, and that record ~~records~~, during ~~said the~~ inner product operation, a second arithmetic ~~arithmetical element~~ subjected to ~~said the~~ inner product operation;

a plurality of sum-of-products operators forming a one-to-one correspondence with ~~said the~~ plurality of registers that perform ~~performs~~, during ~~said the~~ matrix operation, a sum-of-products operation in which ~~by~~ each sum-of-products operator inputs ~~inputting~~ ~~said the~~ first arithmetic ~~arithmetical element~~ recorded in the corresponding register, and that perform ~~performs~~, during ~~said the~~ inner product operation, a sum-of-products operation in which ~~by a~~ predetermined one of the sum-of-products operators inputs ~~inputting~~ ~~said the~~ second arithmetic ~~arithmetical element~~ recorded in ~~all~~ each of the registers; and

a selector that selects, during ~~said the~~ matrix operation, a register corresponding to ~~said the~~ predetermined sum-of-products operator and inputs ~~the a-first arithmetic arithmetical~~ element recorded in ~~the selected this register to in said the~~ predetermined sum-of-products operator, and ~~that~~ selects, during ~~said the~~ inner product operation, ~~said the~~ plurality of registers one by one in a round-robin fashion and inputs, ~~for each of the registers, the a-second arithmetic arithmetical~~ element recorded in the ~~selected register to in said the~~ predetermined sum-of-products operator.

9. (currently amended) An entertainment apparatus that performs image processing on an entertainment image by carrying out a matrix operation between a matrix and coordinate values to perform a coordinate transformation of coordinates expressing ~~the a position and a shape of an object and carrying out an~~ inner product operation between a normal vector oriented in ~~the normal a direction normal to of the surface of said the~~ object and a position vector of a light source to determine the display mode of the surface of ~~said the~~ object, the apparatus comprising:

a plurality of registers that record ~~records said the~~ coordinate values and component values corresponding to any one row of ~~said the~~ matrix during ~~said the~~ matrix operation, and that record ~~records said the~~ normal vector and component values corresponding to any one component of ~~said the~~ position vector during ~~said the~~ inner product operation;

a plurality of sum-of-products operators forming a one-to-one correspondence with ~~said the~~ plurality of registers that carry out a sum-of-products operation during ~~said the~~ matrix operation in which ~~by~~ each sum-of-products operator inputs ~~inputting said the~~ coordinate values recorded in the

corresponding register and component values corresponding to ~~said the~~ one row of ~~said the~~ matrix, and that carry out a sum-of-products operation during ~~said the~~ inner product operation in which a ~~by~~ predetermined one of the sum-of-products operators inputs inputting ~~said the~~ normal vector recorded in ~~all each of~~ the registers and component values of ~~said the~~ position vector;

a selector that selects, during ~~said the~~ matrix operation, a register corresponding to ~~said the~~ predetermined sum-of-products operator and inputs ~~said the~~ coordinate value recorded in the selected ~~this~~ register and the component values corresponding to ~~said the~~ one row of ~~said the~~ matrix to ~~said the~~ predetermined sum-of-products operator, and that selects, during ~~said the~~ inner product operation, ~~said the~~ plurality of registers one by one in a round-robin fashion and inputs, for each of the registers, the component values of ~~said the~~ normal vector and ~~said the~~ position vector recorded in the ~~selected~~ register to in ~~said the~~ predetermined sum-of-product operator.

10. (canceled)

11. (canceled)

12. (canceled)

13. (new) The parallel arithmetic apparatus of claim 1, wherein the first pair is the selected pair.